Active learning methods

Academic Year: 2017-2018 B.Tech I/I Sem

Name of the course: C Programming

Topic designed for the Activity: Identifiers in C Programming

Activity: Concept Tests.

Identifiers in C-Programming are used to name the variables, so while naming the variables few rules have to be followed in the programming. To make the student remember the rules of identifiers, concept test activity can be conducted.

The reason to choose this activity is to test the student how far they have understood the concept. As this topic is related to theory, the students will be just listening to the class and forget the concept .This topic (identifiers) is very important in C programming to declare the variables.

To make the students more concentrate and look out how far they understood the topic, we pose a multiple choice question, with distractors and ask the students individually to answer by holding the cards indicating their chosen option, and then they will be paired and are asked the same question and collect the answers. Then someone will be called upon and asked to give the explanation to the correct answer. In this way, the activity may help the learner group, in reminding the rules when they use identifiers.

What question will you ask the students?

Which of the following statement is true in naming an Identifier?

1. int can be used as a identifier.
2. Identifier can start with digits.
3. Identifier should consist only characters.
4. Hyphen can be used within two words to name the identifier**.**

Details of implementation – group size, how to choose the reporter (person who will take notes and present if asked), how the responses will be shared with the class, etc.

Sl.NO	Activity Implementation	Time
1	On completion of delivering the topic, a multiple choice question will be posed	1 min
2	The students will be individually given time to think and answer.	2 min (1 min to think and 1 min to show and scan results)
3	Pairing is done and time is given to discuss with the paired neighbour and same question is repeated again.	2 min
4	Results are scanned and ask any of the student to discuss the answer.	1 min

Time Allotted for the Activity: **6** min

Pre-implementation reflection: What do you think will work well?

1. Student may get more awareness and may never forget the concept of Identifiers.

2. Students pay more attention while delivering the lecture, since they have to answer to the posed question.

3. Discussing with the paired neighbour may help them to clarify the doubts.

4. Even though, if they have the doubts further, they can clarify from the student, who is going to give clarity on the answer.

What challenges do you anticipate?

1. Discipline when the activity is being conducted.

2. It seems to be a simple problem, but collecting answers may also be difficult, as they show the option by holding the cards, and collecting the answers may take time and in the mean time the students may disturb the class.

How will you address those challenges during the class?

Two challenges can be resolved by taking the help of other faculties, so as

1. Disturbance can be resolved.

2. Time can be reduced.

Post-implementation Reflection:

What worked well?

1. Even though the question was not containing the right answer, I observed many of the students were thinking of it, and answered with doubt as if it was containing right answer. This made them to think on the topic.

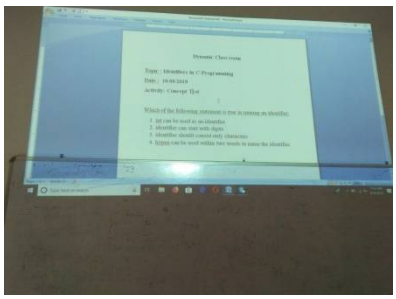
2. Next, Pairing the students helped them to discuss the misconception in their answer and helped to correct it.

3. They asked me to pose another question to test their knowledge on the same topic, really the conducted activity made the students to show more interest towards the topic.

What were the challenges? How will you improve each activity for next time?

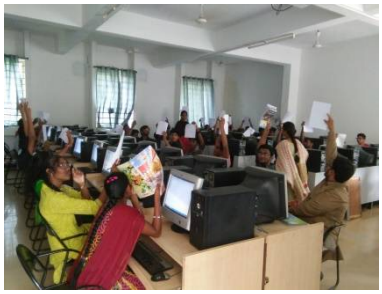
1. As I have used only question for conducting the activity, seeing the interest of the students, if the same activity is conducted for next time, then the number of questions can be extended to 3 to 4, so they get more awareness on the topic.

2. Next time, if the same activity is being conducted then instead of collecting the answers manually, if we use clickers then collecting the results and showing the analysis of the results to the students can be easy.



The question Polled while conducting the Activity

The Students are reading the Question



The students polled their Answers

Discussing the answer with the paired neighbour

Course title:C – Programming

ACTIVITY-Group Discussion

Topic/concept for which this activity was designed: Algorithms and Flowcharts

Strategy: Visual / Verbal Learning

Implementation Strategy in the class:

When I taught the same course and the same topic last year, I observed the following issues:

Few students were able to understand the algorithms (Verbal Learners) which were theoretical and few students were able to understand flowcharts (Visual Learners) which were in Pictorial representation. Earlier, I was in confusion in making the students perfect in two categories. Students can implement any c program, once they understand both the algorithm which gives the step by step procedure and flow chart which describes the flow of the program

I should thank Mr. Richard M. Felder for providing us with different Learning Styles. This time, I am planning to conduct a **Group Activity on the topic algorithms and flowcharts where I divide the class into 10 groups and** each group consists of both Visual and Verbal Learners.

The team can implement the problem very easily and effectively as the verbal learners help the teams by giving requirements in the form of an algorithm and from that the visual learners describe the flow of the program with the help of the flowcharts.

Below is the Lesson plan for conducting the group activity for the topic Algorithms and Flow charts:

Sl.No	Topic	Activity
1	Algorithms and Flowchart Time Duration : 15 **min**	1. Students are divided into 10 teams, each team consisting of visual and verbal learners(5 min) 2. Assign task to each group with new assignment(3 min) 3. Each team has to discuss and come-up with the solution(7 min)

Pre-Implementation Statergies:

Anticipation:

1. At the end of this activity, the student's workout with algorithms and flow chart and will able to write maximum programs.

2. Student gets the confidence to write the programs.

What do you think will work well and what challenges do you anticipate?

1. Group activity may improve the communication skills between the students and helps them to work out to execute the new applications.

2. This may help the students for the next upcoming courses, as the algorithms and flowcharts concept works out through different programming languages.

3. The visual learners may help the verbal learners by drawing the flow charts and explaining the flow of the program, so that the verbal learners can write the programs on their own and vice versa.

4. This may help the students of two groups to improve the logical thinking.

Challenges I may anticipate:

1. By forming the students into a group.

2. Maintain discipline, while the activity is being performed.

How will you address those challenges during the class?

1. The first problem can be solved, by conducting the same survey given by Felder-Silverman, and identify visual and verbal students.

2. The second problem can be resolved by taking the help of 2 or 3 faculty, while conducting the activity.

Post-implementation reflection:

I have conducted this activity for the first time, and I have notice a lot of difference in the traditional and active learning teaching. Really, I felt very glad in conducting this type of activity, because there was a lot of difference in the creative thinking of students.

Post –Reflections:

Venue where activity is performed: Compute Lab:1
Block – 3
Time : 10:30 am to 10:45am

What worked well?

1. Students were divided into 9 teams. Each team has 5 visual learners and 4 verbal learners.

2. All the teams were assigned the with the same assignment, and 7 minutes were given to come up with the solution.

3. 8 groups came up with the solution with in the given time and one group took extra 2 minutes to come with the solution.

4. In the past, when I taught the same course, I observed 70% of the students were able to write algorithms and draw the flowcharts, and remaining students were not able to cope up with the lecture delivered. But this time, when I have conducted the group activity, the members in the team discussed with each other and came up with the solution. Really, there is a drastic increase in the percentage of students (almost 90%) who really understood the concept.

5. 90% of the students are ready to implement any problem using C-Programming with the help of flow charts and Algorithms.

How would you improve the lesson pan next time?

From the observations, 10% of the students were still lagging to understand the concept.

When, I asked the students for the reason, they said that the team members were very fast in giving the solution and they were not able to cope up with them.

So, I need to make few changes in the lesson plan

1. Identify the slow learners and make them separate group.

2. I need to take more concentration on that group.

3. Assign additional time to that group.

Here by, I am attaching the photos of the activity conducted on 30/07/2018

Fig 1: Students Participation in Group Discussion Activity, conducted on 30/07/2018

Activity – 2:
Course title:C – Programming
ACTIVITY-Think – Pair Share
Topic/concept for which this activity was designed: Data Types
Strategy: Active/Reflective Learner

Implementation Strategy in the class:

In a class, we can see two types of leaners:

1. **Active Learners:** Whoprefer to work out the things and work in the groups.

2. **Reflective Learners:** Who prefer thinking things through and to work alone or with a familiar partner

Data Type is the topic where students get confused to understand and know the differences between each of them. Once the topic is delivered we may ask questions to the students and make them think and share the ideas with the paired neighbour, so they may get the clarity with the topic.

For introducing basic data types to the learner group and from the past teaching experience and according to Felder- Silverman Learning Preference, "Active/Reflective strategy" may be used for introducing this topic. This strategy can be implemented by conducting "think-pair share" activity in the class room.

The questions can be like wise:

What type of data type 20 is?
What type of data type 20.5 is?
What type of data type 's' is?
What type of data type is '32456'

Even the questions are simple, the learner group may get confused, and when they listen them for the first time, so to overcome this, the activity is being conducted.

Think-Pair Share: To implement this activity, first the above questions are posed by the to the learner group and ask them to think individually and share their ideas with the paired neighbour and then they should come up with the solution, then the solution will be discussed in the class room.

Implementation Strategy:

30 pairs are done out of 60 students, and in each pair will have one reflective and one active learner. The task will be assigned to each pair and they should discuss among themselves and solve the problem.

Below is the Lesson plan for conducting the Think-Pair share Activity for the topic Basic C-Programs:

Sl.No	Topic	Activity
1	Algorithms and Flowchart Time Duration : **12 min**	1. Pose the question on basic data types and differences between them to the ask the learner group to think individually(3 min) (Think) 2. Now Students are divided into 30 teams, each team consisting of one active and one reflective learners(3 min) (Pair) 3. Share their ideas and come up with the solutions(3 min) (Share) 4. Discuss in the class room (3 min)

Pre-Implementation Statergies:

Anticipation:

1. The reflective learner will be motivated to work in a group.

2. At the end of this activity, the students will be able to get the clear idea of data types, which helps to write the c-programs.

Challenges I may anticipate:

1. In identifying the active and reflective leaner while forming the team

2. Maintain discipline, while the activity is being performed.

How will you address those challenges during the class?

1. The first problem can be solved, by conducing the survey given by Felder-Silverman.

2. The second problem can be resolved by taking the help of 2 or 3 faculties while conducting the activity.

Post-implementation reflection:

Venue where activity is performed: Compute Lab:2
Block – 3
Time : 2:30 pm to 2:42 pm

What worked well?

1. After discussing the Data types concepts, few questions were posed to the learner group.

2. 60% of the students were giving the answers (most of them were reflective learners), then I ask them to form the pair and share their ideas

3. Students discussed with the paired neighbour and were ready to answer the questions.

4. The questions were repeated again with slight modification on the same topic, almost 95% of the students answered them.

How would you improve the lesson pan next time?

From the observations, 5% of the students were still lagging to understand the concept, so to overcome this, give more time to the slow learners to think and share the ideas.

Here by, I am attaching the photos of the activity conducted on **04/08/2018**

Fig 1: Students Participation in Think Pair Share Activity, conducted on 04/08/2018

Activity 2: **Think Aloud Pair Problem Solving (TAPPS)**

This is a powerful technique for helping students work through and understand a problem solution, case analysis or text interpretation translation.

1. I instructed the students to pair up and I designate one of them as "explainer" and other's are as "questioner"

2. The Explainers have 1-2 min time to explain the problem solution to the Questioners.

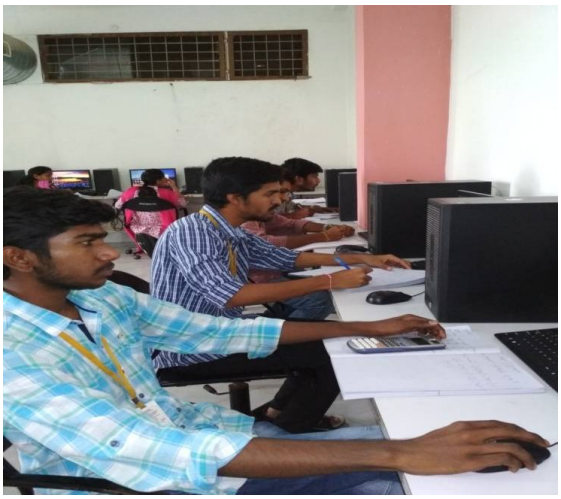
3. Questioners ask questions when explanations are unclear.

4. I Stopped the students after allotted time and I called them for explanations

5. I switched the roles and continue the process till the students clear about the problem.

Pre-implementation reflection:

Before implementing the activities the students just came and doing the task what I given to them in a normal/general way. I observed that in this process some students are doing well but in other hand few students are facing problem while implementing the activities.



Post-implementation Reflection:

By observing the problems I am implemented some Activity Learning techniques like "Think-Pair-Share" and "Think Aloud Pair Problem Solving (TAPPS)" on them. I make them into some groups like 3-4 members per group, and I given limited time to them on discussing the problem and clarifying their doubts. I come to know that after implementing the activities all students got the complete understanding on the course.

Harnessing the Power of Technology

Course Title: **Big Data & Analytics**

Topic: **Hadoop HDFS Architecture**

Year :B.Tech IV/I Sem

I visited “coursesites” website and created my own course site on “Big Data & Analytics”. And I perform few activities like uploading syllabus, material, and schedule. And I uploaded the videos on “HDFS Architecture”, and I created the Assignment and blog on the course.

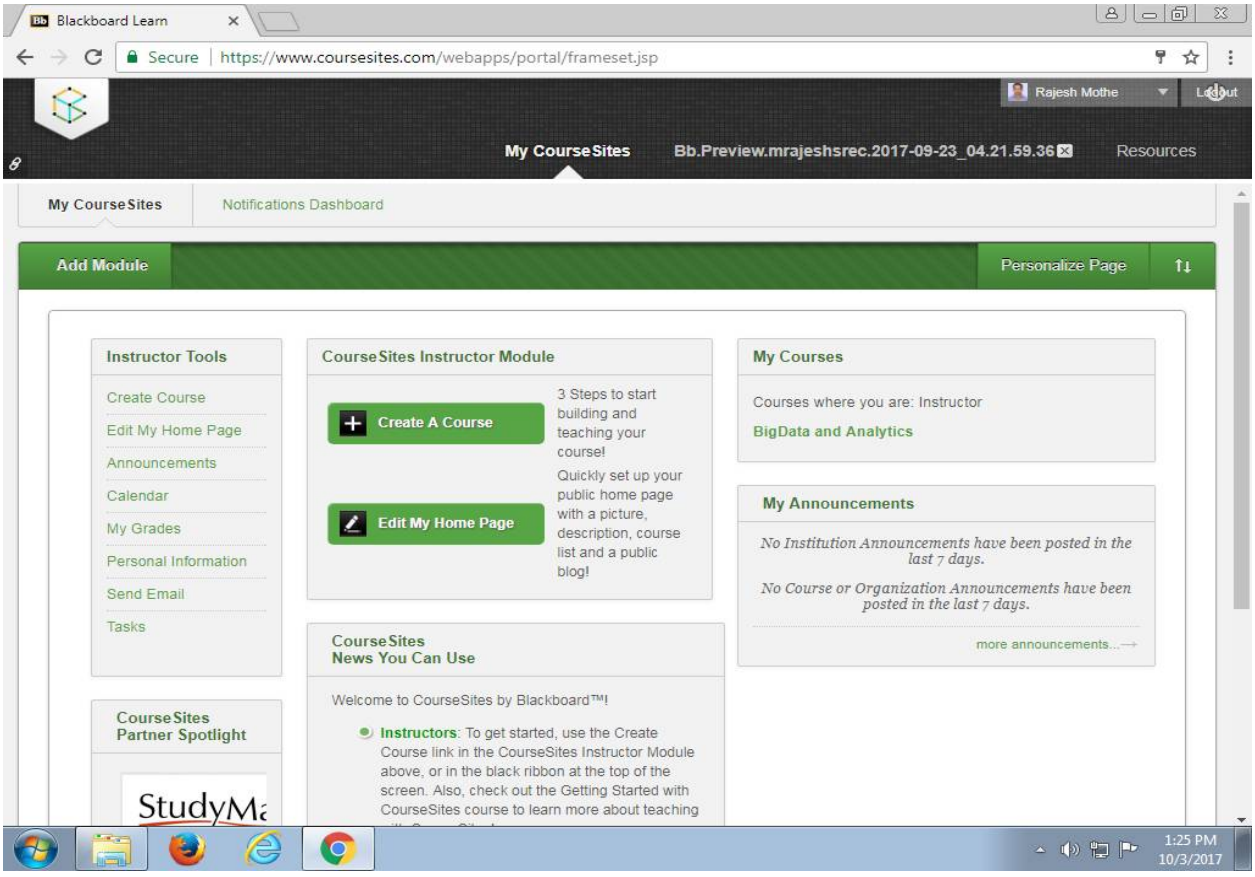


Fig: Home Page

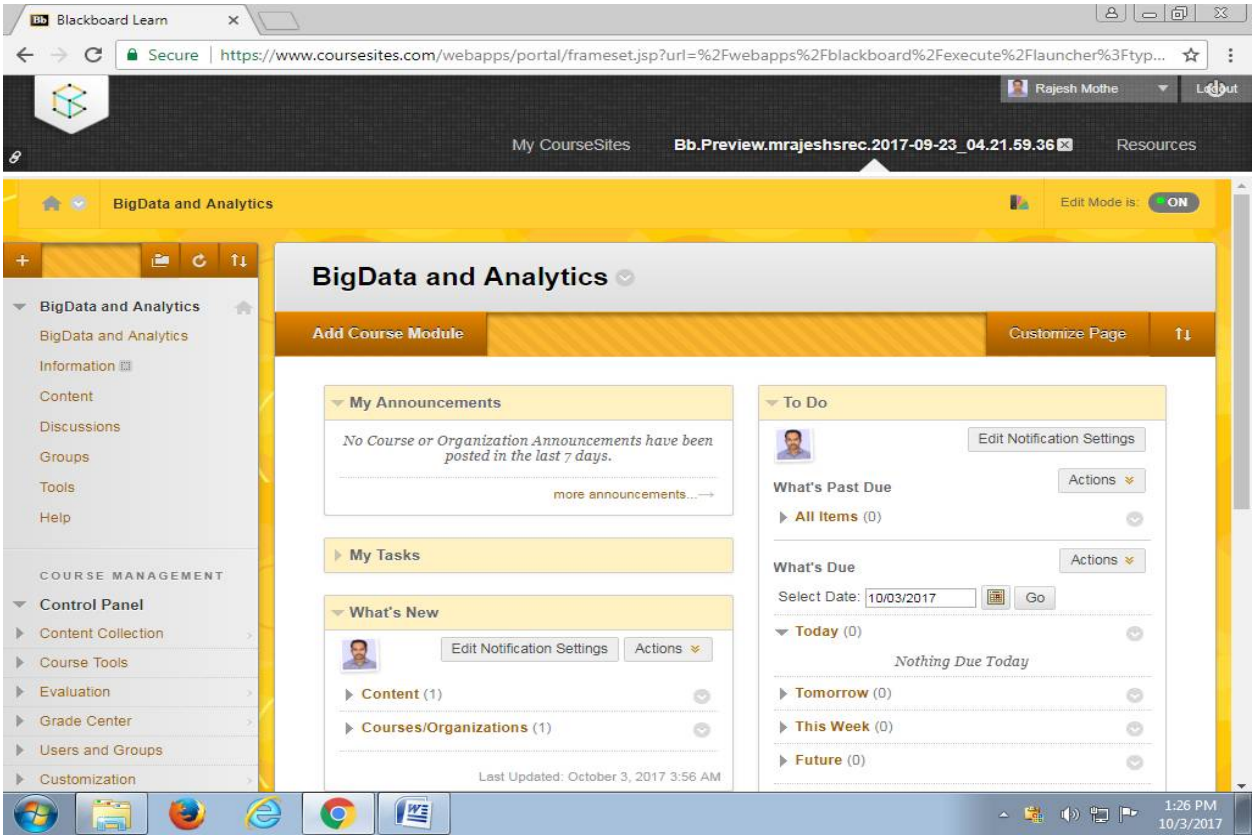


Fig: Course preview

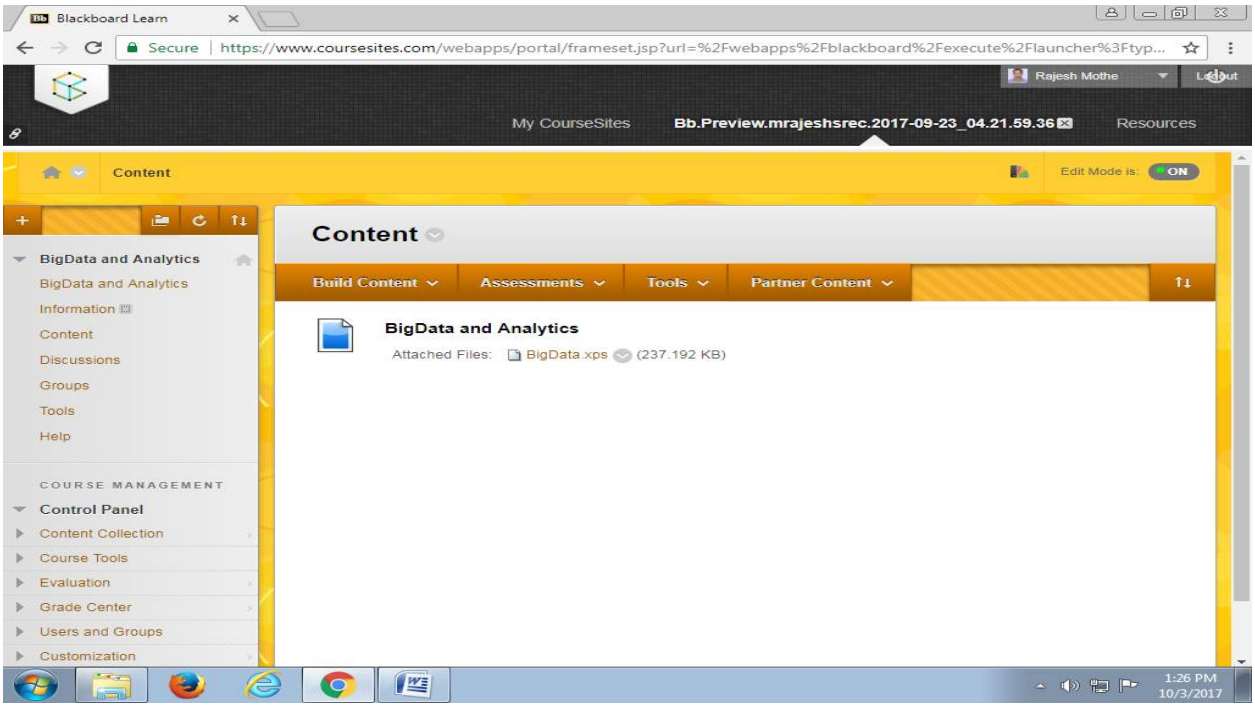


Fig: course syllabus

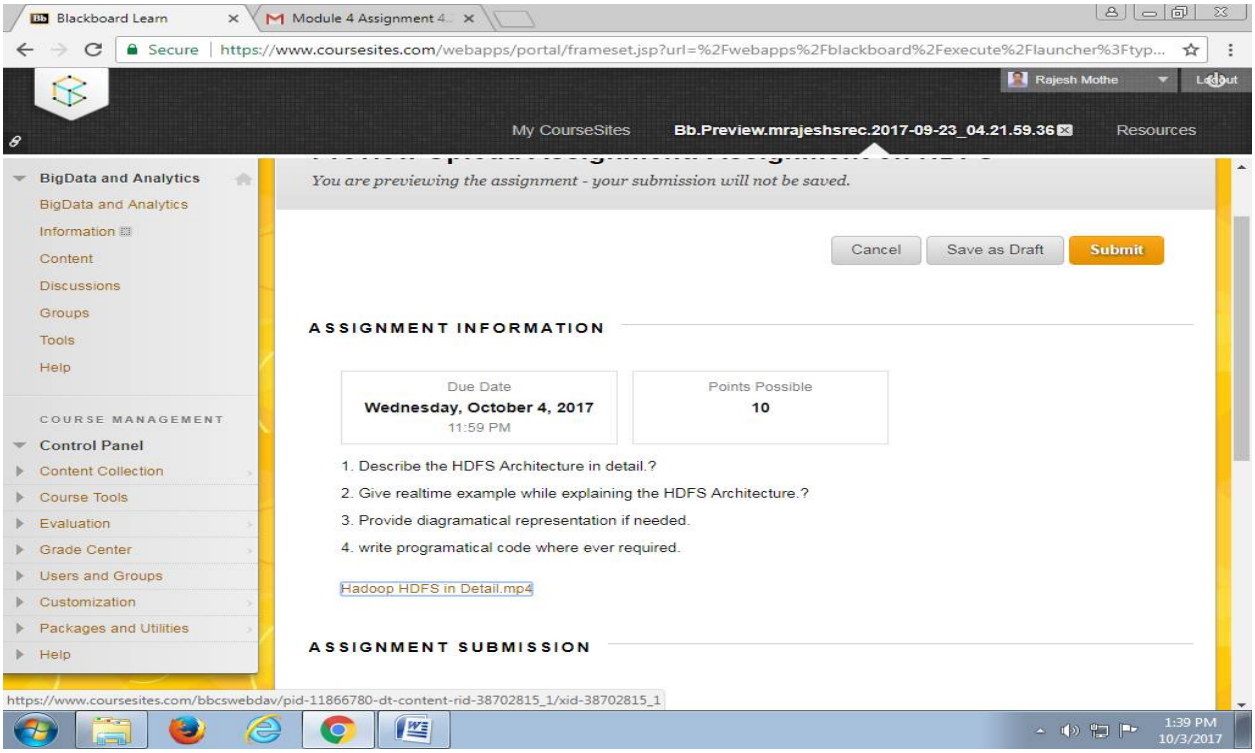


Fig: Creating Course Assignment

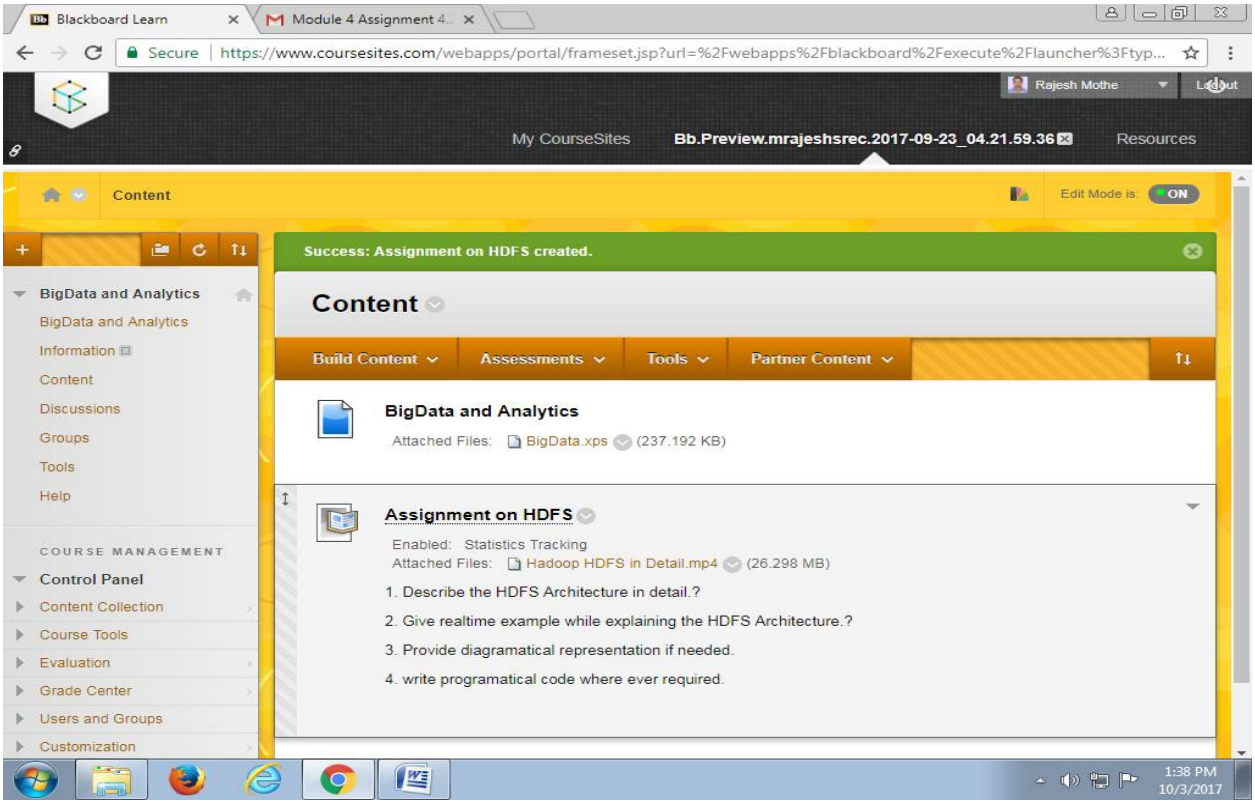


Fig: Course Content

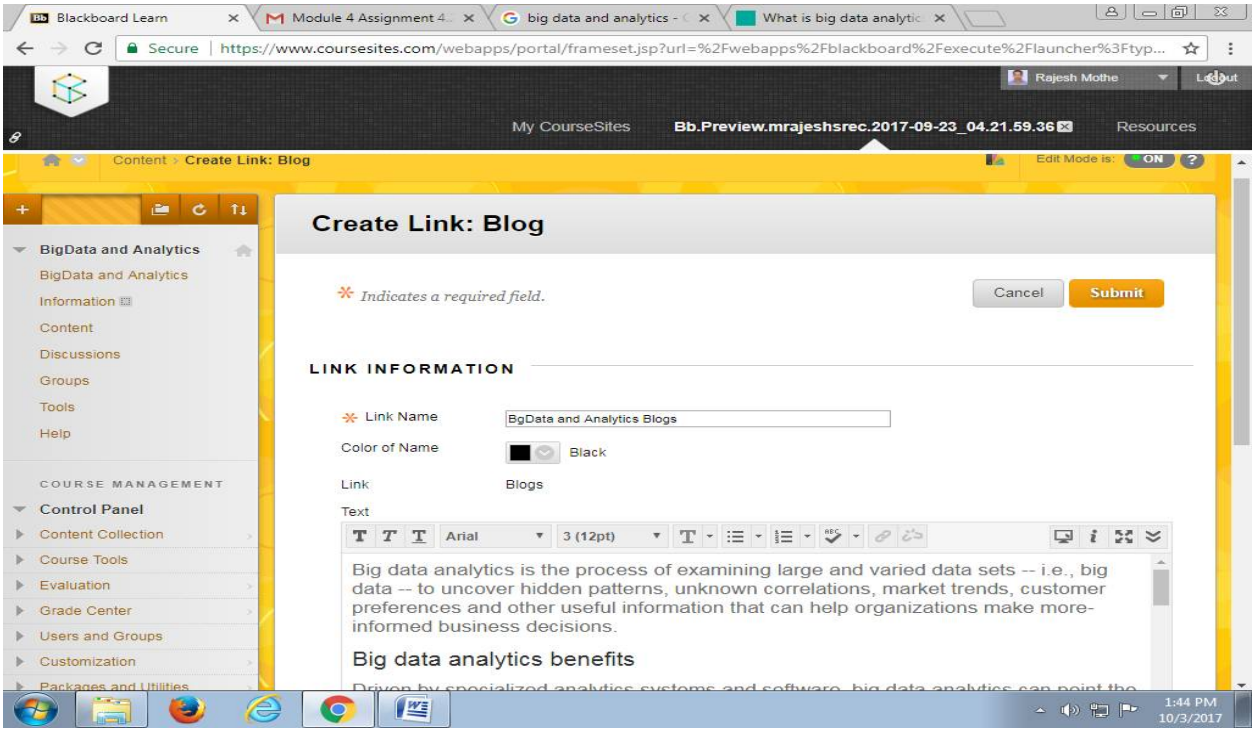


Fig: Creating Course Blog

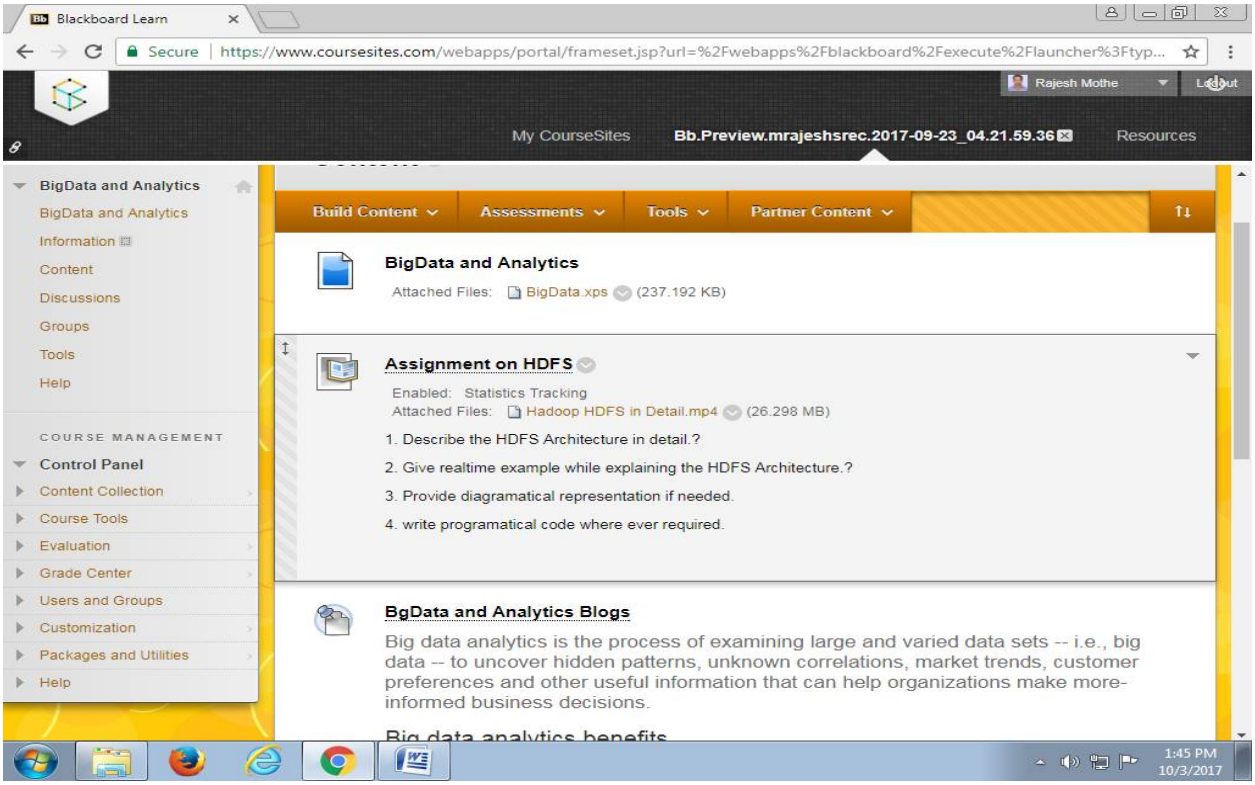


Fig: Course Schedule, syllabus, Assignment and Blog

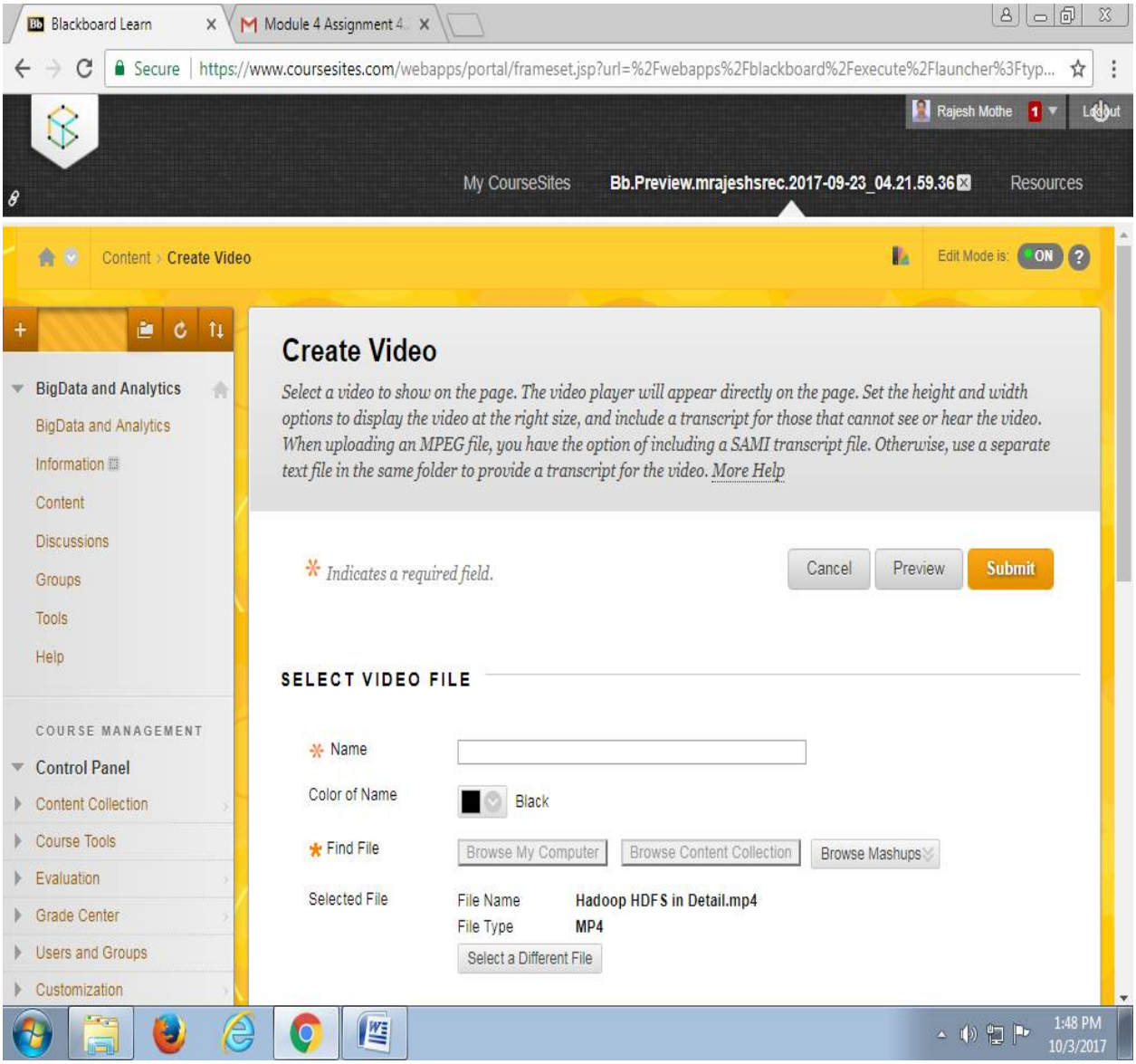


Fig: Uploading the course video

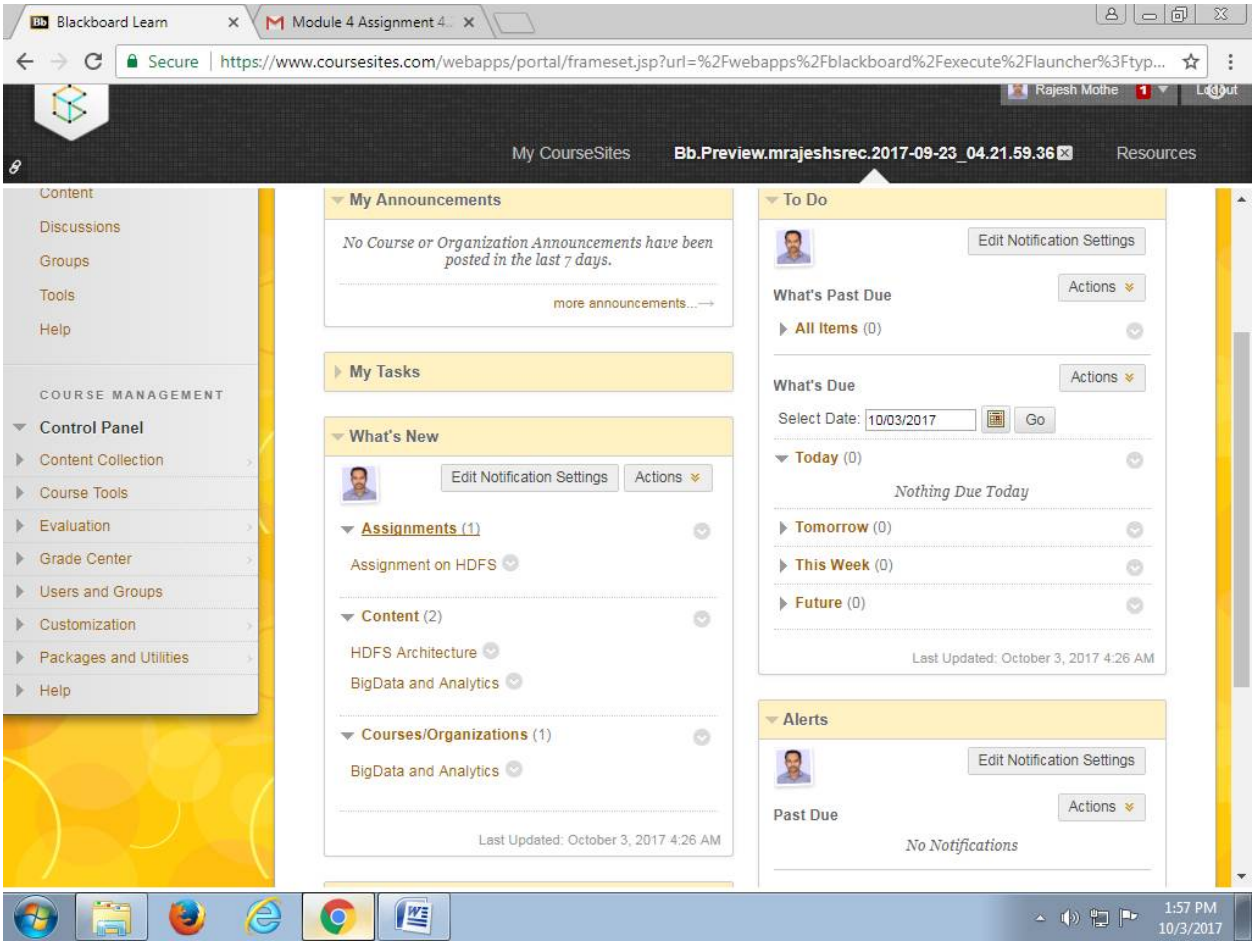


Fig: Final Course site Preview